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# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 289

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11 October 1983

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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## SECOND ABC REGIONAL RADIO NETWORK PLANNED

### Communications Minister's Remarks

Perth THE WEST AUSTRALIAN in English 12 Aug 83 p 1

[Text] CANBERRA: Detailed planning will begin soon for a second ABC regional radio network.

The Communications Minister, Mr Duffy, said yesterday that construction of transmitting stations would begin in 1984-85.

A Government group had already begun detailed planning of the project, which would follow a departmental review of the very high frequency band and facilities at national ABC transmitting stations.

Included in the overall cost of the network would be the studios, bearers, earth station links to satellites to distribute programmes and transmitters.

"An estimated four million Australians living outside the capital cities and who now receive only one ABC radio service, will benefit from the second network," Mr Duffy said.

The network would provide programmes with increased local material and therefore increase the relevance of programmes to each region.

The announcement honours a Labor election promise.

The project is also in line with the recommendations of the Dix inquiry into the ABC.

Mr Duffy said the network would involve the establishment of new ABC studios and the upgrading of others.

He said money would be set aside in this year's Budget to start the project.

The ABC chairman, Mr Ken Myer, said he was delighted by the announcement.

The decision was a vote of confidence in the ABC.

# Hawke Announcement

Sydney THE AUSTRALIAN in English 12 Aug 83 p 3

[Article by Brian Hill]

[Excerpts]

THE Federal Government has allocated funds for a new ABC regional radio network in the August 23 Budget.

The Government estimates that up to 4 million country listeners who now receive only one ABC radio program will benefit.

Canberra is also investigating the possibility of the ABC screening commercial television programs — for example, rugby league Tests — in remote areas not covered by the commercial networks which hold the individual broadcasting rights.

The Prime Minister, Mr Hawke, revealed the plans in Cairns yesterday.

The move was welcomed last night by the chairman of the ABC, Mr Ken Myer, who described it as a vote of confidence in the ABC.

"Provision of the network has been at the forefront of ABC priorities for many years," said Mr Myer.

Mr Hawke said the Government anticipated that the first stations of the ABC's new rural network would be completed by 1985. "When the second regional network commences transmissions it will be possible for the ABC to offer a much wider choice of programming to all its listen-

ers in the north and elsewhere," he said.

"The network will consist of more than 40 regionally-located studios, of which one quarter will be newly established.

"The domestic satellite will be used to distribute this ABC service."

Mr Hawke said the telecasting in remote areas of programs owned by commercial networks was aimed at solving a problem considered by the Dix inquiry into the ABC.

He said the Government had received strong representations from the Queensland Opposition Leader, Mr Wright, as well as unhappy Queensland rugby league fans.

"The committee recommended consideration of a television distribution system that allowed different program material to be included in national television schedules intended for audiences where ABC television provided the only service," Mr Hawke said.

"The Dix committee envisaged that this would allow the ABC, in consultation with other broadcasting industry operators, to consider separate programming for these areas."

He said he had asked the Minister for Communications, Mr Duffy, to take up the proposal with Mr Myer.

CSO: 5500/7594



# WEST AUSTRALIA SEEKS TAX BREAKS FOR HIGH-TECH FIRMS

Perth THE WEST AUSTRALIAN in English 5 Aug 83 p 11

[Text]

**THE WA Government has urged tax write-offs and other measures in this month's Federal Budget to encourage new science-based industries.**

Its wants high-technology companies to be allowed a 100 per cent tax write-off in the first 12 months.

It also favours more freedom in the banking system to allow industries easier access to venture capital.

The Minister for Economic Development and Technology, Mr Bryce, told a news conference that the national Budget deficit should not be an obstacle to imaginative aid.

Mr Bryce has written to the Prime Minister, Mr Hawke, warning that Australians would pay a severe price in lost job opportunities and economic growth if the Government did not act decisively.

He said that Mr Hawke should reject what he called the dangerous and stodgy thinking of the Industrial Assistance Commission and the Federal Treasury.

The worst course would be to adopt the neutral position advocated by the commission and allow market forces to determine what happened to high-technology industries.

The Government should pull the plug on the commission. Australia would get carved up mercilessly if it adopted the nonsense proposed in the commission's discussion paper on new technology and industry assistance.

There was substantial government involvement in high-technology industry overseas.

Countries such as Ireland, Israel, Sweden and Singapore co-operated with private industry and academic institutions to provide tax concessions, investment incentives, subsidised interest rates, grants, special depreciation allowances, access to cheap land and promotion and marketing support.

The Federal and State governments should co-operate to develop an internationally competitive climate for growth of new science-based industries.

He had talked overseas with representatives of smaller, highly sophisticated companies specialising in such areas as medical implant devices, medical

imagery—companies combining nuclear, radiological and computer medicine—energy control systems, effluent disposal and chemical manufacture.

The Government was having firm negotiations with three companies and a decision was expected within a month on the establishment in the technology park of a company involved in the medical products field.

He said: "Their most hopeful scenario is that within four or five years they would be employing about 300 people and investing about \$30 million."

He believed that the park would be fully occupied in five to six years.

Perth's biggest advantage was its proximity to the South-East Asian market.

About 12 per cent of the world's demand for electronic and biotechnological equipment existed between India and Papua New Guinea.

There would be an explosion for those commodities in the region in the immediate future.

GOVERNMENT COMPUTER CONTRACT WITH 7 COMPANIES REEXAMINED

Sydney THE AUSTRALIAN in English 9 Aug 83 p 9

[Article by Helen Meredith]

[Text]

A \$40 MILLION four-year computer contract awarded by the Federal Government to seven computer companies is unlikely to run its full course.

Specifications for the tender documents for the contract, written under the previous government, were heavily weighted to serve the Defence Department.

Now it seems the present Government wants to broaden the scope of the restrictive specifications to cater for the needs of other departments and take advantage of rapid advances in technology.

The first hint that the Government might have had second thoughts over the administration of the present contract appeared in a statement made last week by the Minister for Administrative Services, Mr Brown.

Having named the successful tenderers, he went on to say: "The Government is not guaranteeing that the seven companies on the panel will be retained for the four-year period or will be the only suppliers of office computers to the Commonwealth during the period."

He said it had been decided to conduct a further review of

departmental requirements and to invite fresh tenders for supply of office computer systems based on "changing requirements".

The suppliers, who may now be wondering exactly what the contract is really worth, are: Archives Computer (Aust), In Systems Pty Ltd, Eracom Pty Ltd, ICL (Aust) Pty Ltd, Hewlett-Packard Australia Ltd, Prime Computer of Australia Ltd and Sigma Data Corporation.

Tendering for government contracts has become an enormous headache for hi-tech companies. The cost is always massive and can amount to as much as 10 per cent of the value of the contract whether a company wins or loses.

At the heart of the problem lies the lightning speed at which computer technology moves, making any piece of machinery old-hat almost before it is installed.

Evaluation tests have become a time-consuming and expensive part of the tendering process. But more importantly, recent events suggest that writing specifications to accommodate rapid change is a skill not yet mastered by government.

The Government has not in-

dicated what the timing will be on calling for fresh tenders but obviously wants to get the current defence project off the ground.

### Experience

The Defence Department is known to have carried out all the evaluation tests for the \$40 million contract and is presumably ready to move quickly on the project.

An interesting entry on the list of preferred suppliers is Australian manufacturer, Eracom, which tendered with its Series 60 and 80 computers, long experience in leading-edge encryption technology and standardised multibus architecture.

Eracom's encryption device is incorporated in the machine, scrambling data as it is transferred from the outside diskette to the inside world of the processor. The bus architecture, which was submitted for international standardisation during the contract discussions, makes it possible for the interface cards of at least 100 other manufacturers to be mounted in the locally-manufactured Eracom machines, an obvious advantage in supplying to departments with a range of equipment needs.

HARMOKO ANNOUNCES 24-HOUR BROADCASTING SERVICE

BK111218 Jakarta Domestic Service in Indonesian 0700 GMT 11 Sep 83

[Excerpt] The highlight of today's celebrations of the 38th radio day, which was held at the Radio Republic Indonesia [RRI] studio 5 in Jakarta, was Information Minister Harmoko's official announcement of the commencement of RRI's 24-hour nonstop broadcast. The minister reminded RRI that the 24-hour broadcast should be matched with an improvement in the content and quality of its programs so that RRI broadcasts can have a positive impact on the broad masses of society.

Besides promoting development information packages, Minister Harmoko also expressed the hope that RRI will continue its tradition of promoting meaningful songs and talented singers in its efforts to preserve the national culture and identity. The information minister also explained the reasons behind the 24-hour broadcast:

[Begin Harmoko recording] 1. It is because of the geographical location of our country, which comprises thousands of islands, that it is divided into three time zones--West Indonesia time, Central Indonesia time, and East Indonesia time--a 1-hour difference between the respective zones. Also the islands, which are endowed with abundant natural resources, are separated by seas and straits. The villages are separated by mountains, valleys, rivers and a variety of customs and cultures.

2. The rapid realization of national development calls for speedy information at any time. The required speedy information should not only mean whatever can be presented to society, but its content and message should also be useful to society so that there will be a two-way flow of communications.

3. The availability of broadcast time will enable RRI to increase its program packages on education and science which are badly needed by our society, particularly our people in the rural areas. To upgrade the people's intelligence is part of the means to ensure the success of national development.

4. Quantitatively, the 49 RRI stations and the 300 transmitters with a capacity of 2,851 kilowatts are expected to further play a role and truly function as a means for development communications. In carrying out its task, RRI has as its partners 569 non-RRI stations, including private commercial stations.

5. RRI will absolutely play a role in providing speedy information for the sake of further promoting dynamic national stability within the framework of supporting the national resilience. [End recording]

BULGARIA

BRIEFS

REPORT ON INTERCOSMOS SESSION HELD IN SOFIA--A regular session of the Permanent Working Group of the socialist countries on space communications under the "Intercosmos" programme was held in Sofia, September 20 through 23. The delegates in the session discussed the results of the researches in the sphere of space communications in the 1982-1983 period. It was stressed that the international experiments' field set up in Dubna, USSR, stands an eloquent example of socialist integration. It was stressed at the session that the development of new and promising apparatuses for the international satellite communications system of "Intersputnik" is proceeding successfully. A programme for the work on the transmission of research data along satellite lines was coordinated. The directives were outlined for researches in the sphere of space communications in the next five-year period. [Text]  
[AU241224 Sofia BTA in English 1854 GMT 23 Sep 83]

CSO: 5500/3001

PARAGUAY

REGIME ARRESTS NEWSMAN, SILENCES BROADCASTER

ABC COLOR Journalist Jailed

PY241505 Asuncion ABC COLOR in Spanish 24 Sep 83 p 11

[Excerpts] Alcibiades Gonzalez Delvalle, a journalist for this newspaper, was once again arrested yesterday, now "on an order from the top," and he is being held in the Police Investigative Department [DIP]. Gonzalez Delvalle, who is also secretary general of the Journalists Union of Paraguay, was arrested twice before, first charged with violating Law 209 [Law for Defense of the State and People's Freedom], and again under provisions of the State of Siege.

The DIP Public Relations Office said that for the time being it will not issue any communique on the arrest of Gonzalez Delvalle.

Announcer's License Revoked

PY241330 Asuncion HOY in Spanish 24 Sep 83 p 6

[Text] Humberto Rubin will no longer be able to speak over the microphones of Radio Nanduti. Rubin finds himself in this situation after receiving a note from Antelco [National Telecommunications Administration] informing him that his name has been removed from the list of licensed radio announcers, and reminding him of the penalties which can be applied to those who speak over radio microphones without the license to do so.

The Antelco note is the most direct measure adopted by the government against this well-known radio station and its director since the recently completed month-long suspension imposed on Radio Nanduti.

Yesterday, the police denied Rubin permission to hold a meeting in the Jacinto Herrera Theater, his radio station's public auditorium, to discuss the Antelco suspension of the "Superwave" program last Thursday. Personalities of various sectors of the community were to attend the meeting and participate in the discussion, according to advance announcement.

At noon yesterday, Rubin was summoned to the 7th police district, where he was informed that his request for a permit for this meeting was denied.

Rubin was also summoned to a meeting with Roque Fleitas, an Antelco official, at noon yesterday which he could not attend.

In the afternoon, the Radio Nanduti director received from Antelco a list of licensed radio announcers from which his name was omitted.

#### Opposition Party Protests

PA260010 Havana International Service in Spanish 1800 GMT 25 Sep 83

[Text] The Paraguayan Authentic Radical Liberal Party [PLRA] has strongly protested the arrest of newsman Alcibiades Gonzalez del Valle, describing the regime's measures as illegal and illegitimate. The organization came out with a similar rejection of the official measures taken against Radio Nanduti, an independent station that has repeatedly been closed down.

Del Valle, a reporter for ABC, an independent newspaper, and secretary general of the Paraguayan journalists union, was arrested for attacking dictator Alfredo Stroessner's regime in his articles.

CSO: 5500/2000

## POSSIBILITIES OF NEW INSAT-1B DESCRIBED

Bombay THE TIMES OF INDIA in English 1 Sep 83 p 9

[Text] Bangalore, August 31 (UNI). INSAT-1B is the harbinger of a revolution.

The satellite is designed to bring about a manifold expansion of the existing telecommunication, broadcasting, weather forecasting and television facilities in the country.

It can take these facilities to the remotest areas and end their age-old isolation.

The very high resolution radio-meter aboard INSAT-1B will provide round-the-clock, regular, half-hourly synoptic images of weather systems including several weather, cyclones, sea-surface and cloud-top temperatures, water bodies, snow and so on, thus enabling identification of cyclones 12 to 14 hours faster than conventional methods.

It will also facilitate collection and transmission of meteorological, hydrological and oceanographic data from unattended remote platforms. It would make possible timely warning of impending disasters such as cyclones, floods and storms as well as dissemination of meteorological information.

The meteorological data transmitted by INSAT-1B will first be received by the Delhi earth station and transmitted to the meteorological data utilisation centre (MDUC) of the Indian meteorological department headquarters in New Delhi. The data would be converted at MDUC into earth's cloud pictures which could be used in day-to-day weather forecast. This will commence on an operational basis about a month after operationalisation of INSAT-1B.

The satellite has two high-power national coverage transponders for radio and television networking. Each is capable of handling one direct TV broadcast channel for direct reception TV networking and five injected carriers for services such as national and regional radio networking, disaster warning and so on.

All India Radio plans to deploy 94 channel radio networking (RN) terminals by mid-1984. At the time of INSAT-1B operationalisation a total of 30 simplified

RN terminals would be ready for operation. The four metropolitan cities would have uplinking (transmission) capability to facilitate interconnection. National or regional coverage of special events and other and remote locations would be possible through an augmented transportable earth station.

The satellite could be used for television broadcasting either directly or augmented community TV receivers or to national or regional networking of terrestrial transmitters. This will be made possible through the satellite's two high-power S-band transponders.

The initial limited scheme (1982-87) for the TV utilisation of INSAT-1 broadcasting service to clusters of selected contiguous three districts each in Andhra Pradesh, Bihar, Gujarat, Orissa, Maharashtra and Uttar Pradesh. Eight thousand direct reception sets would be installed in these connections.

#### TV Expansion

It also envisages setting up of four rebroadcast transmitters at Gorakhpur, Nagpur, Rajkot and Ranchi and provision of 6,600 VHR community TV sets in the coverage areas of rebroadcast transmitters. There is provision of uplink facilities from Delhi and Shillong, a transportable station with TV uplink capability and so on.

The special plan for TV expansion involves implementation of additional 13 high-power and 112 lower-power transmitters. At present there are 41 transmitters including 20 low-power ones. Once INSAT-1B is made operational, all 28 transmitters would be switched over to it.

The 12-transponders on board the satellite will have a total practical telecommunications capacity of roughly 4,300 two-way telephone circuits, each capable of handling up to two TV distribution (not broadcast) channels or 1,332 one-way telephone channels while working with the large, 11 m. diameter terminals.

This segment will thus make available long-distance telephone circuits potentially accessible from any part of India. The utilisation of this segment will be cost-effective for distances of more than 2300 km.

At present, apart from the master control facility at Hassan, there are 30 fixed earth stations, including 28 of the posts and telegraphs department. The Oil and Natural Gas Commission has an off-shore station on one of its rigs and an on-shore station at Uran. Of the two transportable terminals, one is ready and other would be available in October. The emergency communication terminal is expected to be available in January 1984.

CSO: 5500/7200



## FULLY INDIGENOUS ELECTRONIC EXCHANGE IN 3 YEARS

Madras THE HINDU in English 1 Sep 83 p 6

[Text]

NEW DELHI, Aug. 31.

Difficulties are anticipated in switching over to the fully digital system of E-10-S the technology for which is expected to be transferred by Cit Alcatel, the French collaborators of the Indian Telephone Industries (ITI), for building two electronic exchange equipment factories each with an annual capacity for 500,000 lines.

Both the Department of Electronics (DOE) and the Union Communications Ministry are aware of the problems which would crop up in the adaptation of E-10-S to suit Indian conditions. They are considering how best to tackle these problems by extensive indigenisation of the technology.

The technology which is being transferred for the factory being set up at Gonda in Uttar Pradesh is that of E-10-B which is hybrid — partly analogue and partly digital. The fully digital E-10-S which is still under development is entirely different in all aspects from E-10-B and it may not be suitable for small exchanges. Apart from this, the ITI will have to ensure adequate and satisfactory hard and software availability for the E-10-S digital exchanges both from indigenous sources and from abroad.

**Microprocessors:** The E-10-S system which is yet to be proven by field trials will use the 16 bit microprocessors. Semi-Conductors Ltd. of Chandigarh which had been hoping to obtain the technology for the microprocessors from Intel of the U.S. is now approaching two other firms, Motorola and Zilog, for collaboration as the IBM may not give it the technology.

The DOE which has carried out detailed studies on all matters relating to the Electronic Switching System (ESS) has come to the conclusion that it is possible for India to set up a third electronic exchange factory on its own without foreign collaboration. Though no proposals have yet been drawn up the a third factory, the continuing big increase in demand will leave India no choice but to expand the availability of electronic exchange equipment.

The transfer of research and development from Cit Alcatel, the DOE feels, should in the

meanwhile be put to the maximum use to enable Indian telecommunication engineers to develop a wholly indigenous ESS within this decade.

**Component requirements:** The studies carried out by the DOE on the ESS and into the content of the E-10-B technology of Cit Alcatel have revealed that the infrastructure available in India (in the Bharat Electronics, the Electronics Corporation of India, the ITI etc.) could be fully utilised and adapted to meet the component requirements of the electronic exchange factories.

The report prepared by the DOE on the implementation of the indigenisation programme has, among other things, drawn attention to the fact that the technology advance since 1976 has considerably reduced the hardware development efforts because of the advent of large-scale and very-large-scale integrated circuits and India is very well placed with regard to software availability.

The DOE has also just completed another report on the status of components, equipment assembly, automatic testing and computer-aided testing facilities in the country for assisting the development and engineering programmes on digital ESS. The report says that the components needed for ESS are mainly sub-assembly consisting of line and trunk circuits, digital interfaces, line switch codes, switching, sub-systems consisting of time division matrix and speech path controllers etc.

The report also reveals that in the E-10-B system of Cit Alcatel integrated circuitry accounts for 18.4 per cent, connectors 12 per cent, printed card boards 16.3 per cent and transistors 7.8 per cent, while the share of a number of other components is individually very much less. The report has pointed out that components like connectors, printed cardboards, relays and diodes are used in large numbers and the infrastructural facilities available within the country should be adequate to produce a good number of these components though the quality of production will have to be improved greatly.

**Indigenous exchange:** Taking all these factors into account the DOE has stated in its

report that it should be possible to develop a fully indigenous state-of-the art electronic exchange system within 36 months. This task will call for orienting the research and development activity to producing a package of designs for the production of both hard and software and for the setting up of ancillary industries.

The report prepared by the DOE on how production of prototypes for field trials and later for commercial use should be organised takes note of the infrastructure available within the country and the items which may have to be imported.

The indigenisation which the DOE is working upon is aimed at ensuring that the ESS developed within the country should suit the Indian traffic and environment which is marked by "high busy hour calling rate". It (the ESS) should use standard building blocks and should be economic throughout the size range and should be adaptable for varying applications like voice and non-voice services (telephone and telex).

CSO: 5500/7201

INDIA

#### BRIEFS

ELECTRONIC TELEPHONE MANUFACTURE--NEW DELHI, Aug. 29.--Four State electronic corporations have been licensed to manufacture 200,000 electronic telephone instruments each a year. The push button dials in electronic telephones are intrinsically more reliable. These make better use of the subscriber facilities available in electronic exchanges. Besides, multi-frequency signaling, which can be used with electronic telephones, enable electronic exchanges to function more efficiently. Electronic telephones are slightly more expensive than conventional ones. But this would be more than offset by the reduced expenditure on maintenance and lower power consumption. [Text] [Calcutta THE STATESMAN in English 30 Aug 83 p 9]

INDIGENOUS CROSSBAR SYSTEM--BANGALORE, September 4 (UNI): An indigenously-designed 4,000-line improved crossbar system was formally inaugurated by Indian telephone industries managing director, Mr. K. Swaminathan, here today. Speaking on the occasion, Mr. Swaminathan expressed happiness over the successful commissioning of the project. Import of machinery increased unemployment and indigenisation would speed up the country's progress in industrial and economic spheres, he said. [Text] [Bombay THE TIMES OF INDIA in English 5 Sep 83 p 8]

CSO: 5500/7202

## SOUTH AFRICA

### DECADE OF MICROELECTRONICS RESEARCH AT CSIR DESCRIBED

Pretoria SCIENTIAE in English Jul-Sep 83 pp 2-7

[Article by T C Verster, Director, National Electrical Engineering Research Institute: "A Decade of Microelectronics at CSIR"]

[Text]

Microelectronics, one of the most remarkable technologies in the history of modern man, has brought about transformations in many spheres of life, which could hardly have been foreseen ten years ago, and not at all twenty years ago. Banking, for instance, is quite different from what it used to be because of this technology, electronic games are sweeping the world, skilled watchmakers have seen their trade becoming obsolete and even inexpensive cameras can now 'think' for themselves.

How important is microelectronics really, and why can it not be ignored? To begin with, taking a look at its role in the field of economics can be helpful in placing it in perspective.

The total forecast trade value of integrated circuits (ICs) to be used in the USA, Japan and Europe in 1983 is  $\$12,2 \times 10^9$ . This is about twice the amount South Africa will earn from the sale of newly-mined gold in the same period. This comparison is made only to provide a point of reference, in other words, to illustrate that world trade in integrated circuits as such, is more valuable than the total world gold production (assuming South Africa's share to be 60 per cent), and it is consistently increasing at an average annual rate of about 20 per cent. Furthermore, the trade value of electronic equipment for the same three regions is forecast at  $\$228,4 \times 10^9$  for 1983. This means that electronic equipment is approximately 20 times

more valuable than integrated circuits; nevertheless the former cannot exist without the latter.

Microelectronics is labelled a 'leverage technology' because it makes possible the creation of electronic equipment which could not have been produced by means of any other technology, which effectively enhances the intrinsic value of ICs by more than an order of magnitude. It is estimated that this leverage goes even further and affects about 10 per cent of world trade products today, in other words equipment which is essentially non-electronic, but which has some electronics content. The indirect leverage of microelectronics is incalculable, because it has caused entire new industries to come about (for example the information industry) and it is affecting the whole living and working environment in varying degrees (factory and office automation for instance).

#### Historical overview – microelectronics at the CSIR

During the early sixties integrated circuits began to appear on the market, and electronic equipment designers quickly started incorporating these into new products, in South Africa as well as in other countries. At the CSIR, too, users of these imported semiconductor components multiplied readily. But no in-depth

know-how existed in South Africa on how to design or manufacture the ICs themselves, nor was this considered an immediate need. The Solid State Electronics Division (at that time part of the Electrical Engineering Department of the National Research Institute for Mathematical Sciences – NRIMS), however, anticipated that such expertise could in future become a real need, and initiated activities in this field, which led to the following early milestones:

- 1966: first laboratory model of a working thin film circuit;
- 1970: first local design of a bipolar integrated circuit. Samples of this circuit were subsequently successfully made by an overseas semiconductor manufacturer;
- Oct 1973: successful laboratory samples of a simple bipolar IC made in South Africa for the first time. This was a complete exercise which included design and improvised tooling for mask making;
- Sept 1974: successful laboratory samples of a simple MOS (Metal Oxide Semiconductor) integrated circuit made in South Africa for the first time.

At this stage it was considered whether the CSIR could effectively ensure continuity of supply for certain specialized ICs. It was concluded that this would not fit into a research laboratory environment, and that a special single-purpose small production unit should be created. In August 1976 the IC Production Facility was officially inaugurated, operating under the wing of the National Electrical Engineering Research Institute (NEERI).

An important decision made in 1974 was to licence the use of a well-proven and fully documented production process, rather than to use the pioneering laboratory process. This has made a major contribution towards ensuring the effectiveness of the Facility so that production could come on-stream without long delays and that the licensor of the process could act as a back-up source if local production capacity limitations are reached.

Two other links were also essential if independent local IC development and supply were to be realized. These were forged in 1974

and 1976 when, firstly, an interactive computer-aided mask layout system, and then a sophisticated computer-controlled optical mask-making machine were put into service. The possibility of producing custom ICs for proprietary and novel equipment was offered to the electronics industry on a fairly broad front, and more than 30 such circuits have been designed during the last seven years. However, only about one out of five reached the stage where significant production quantities (2 000 or more) were delivered.

Although the IC Facility was not fully loaded initially, it supplied valuable experience in the relative importance of matters such as specifications, quality assurance and design simulation during the industrialization phase of this type of product, experience which was lacking at that time both at the CSIR and elsewhere. Since then the production line has become so loaded that plans have now been made to upgrade the operation.

One historical event has had a major effect not only on research and development in microelectronics at the NEERI, but also at universities and in industry – the introduction in 1975 of the philosophy of the uncommitted integrated circuit. It was realized that, while custom ICs had a vast potential among equipment manufacturers in South Africa, most applications needed a total production volume of less than 10 000 and the development cost and long time scale of a conventional optimized custom IC usually formed a barrier. The uncommitted integrated circuit, designed eight years ago, contains a variety of more than 300 components such as resistors, capacitors and various types of transistors which are not connected to each other in any way initially. The circuit designer's task is to specify an interconnection pattern only, which relieves him of the need to design components. In addition, the NEERI developed a design kit which consists of a detailed handbook, breadboard components (used to build experimental circuits), and a large outline drawing. With the aid of this kit, decentralized IC design was made possible and development cost as well as turn-around time for prototype samples could be substantially reduced.

The importance of this concept can be measured against the role it has played in practically every custom bipolar IC designed since. Three further variants of the uncommitted circuit have been developed; the latest version by the University of Natal. The universities of Stellenbosch and the Witwatersrand and the Rand Afrikaans University have produced many graduates who gained much of their IC design education through projects executed by means of the uncommitted circuit.

#### **Present developments**

Research and development activities are presently handled by the Microelectronics Department of the NEERI, which has placed heavy emphasis on the stimulation of local component and equipment manufacture.

The Protea telephone, for instance, contains a special high-voltage transistor which was developed for this application because of problems encountered earlier with failures and unreliable overseas sources of supply. Even the production process was developed in the NEERI technology research laboratory, and configured in such a way as to make possible the production of transistors in the IC Production Facility without disruption of IC manufacture. A total number of about 1 million have been delivered to date. Normal small transistors are produced at an annual rate of more than five million. The labour-intensive part of transistor manufacture – the encapsulation of the chips in small metal cans – is undertaken by industry, while the NEERI delivers tested transistor chips only.

The new DISA telephone, which is being introduced in 1983 will have a nearly 100 per cent local content as far as semiconductor devices are concerned. A unique high-voltage 'Darlington' (tandem) transistor was developed to replace the mechanical switches previously used in the rotary dial instrument. This Darlington transistor integrates two transistors into a single unit which will save cost directly, but, more important, it incorporates additional features which should improve reliability and reduce repair costs substantially. The NEERI

IC Facility is geared up to manufacture these Darlington transistors in chip form, at an annual rate of some ¾ million.

The push-button dialler IC is totally manufactured by South Africa's only commercial IC plant, SAMES. The two bipolar integrated circuits of the DISA telephone have also been developed at NEERI to make possible local production, such as the manufacture of the circuits in chip form by the IC Production Facility and final encapsulation and test by local industry. The first IC, which is already in production, generates a new, more pleasant ring tone. The other IC acts as a 'transmit and receive' speech-amplifier. This joint project, which needed co-ordination between the

Department of Posts and Telecommunications, the NEERI, Telephone Manufacturers of South Africa and SAMES, helped create the machinery for further similar future developments, where IC design and technology expertise could help ensure development of modern, cost effective equipment.

Custom ICs are considered extremely important for the local electronics industry and much effort is still devoted by the NEERI design team and others to exploiting the possibilities that custom design offers for the solution of difficult problems. Solutions are usually proprietary to the customer concerned and cannot be published freely (in fact, a custom IC is often used as a safeguard against unauthorized take-over of unique new design features by competitors).

A two-line to four-line converter for use in a telephone exchange, which is conventionally done by means of transformers but which is cumbersome and needs individual adjustment, is an example of one such problem. The new solution is based on translinear circuit principles, and was developed by a post-graduate student at the University of the Witwatersrand. The circuit was laid out by the NEERI on the latest analogue uncommitted circuit developed by the University of Natal.

The NEERI has made a number of fundamental contributions to circuit design techniques and systematic synthesis of prescribed functions,

which have been published in the scientific and engineering literature. A unique new bipolar logic technique, translinear logic (TLL) was also formulated and a provisional patent filed. This may be an important discovery, because TLL provides the opportunity to include fairly high density, very fast logic on the same chip with analogue functions, and can be manufactured by a standard analogue bipolar process. It is, therefore, potentially useful to any manufacturer who has an existing production line.

The reason why this possibility is important, is briefly as follows. Most electrical signals (eg voltage from a thermocouple which measures temperature) are analogue in nature (smoothly varying proportional to primary effect), while electronic processing by computers needs signals in digital form (also proportional, but in discrete steps). Any technique which allows both forms of signal processing, plus conversion from one to the other, to co-exist on a single IC chip, therefore allows designers a new degree of freedom.

#### **Future view**

Much concentrated thought has been devoted by people in various related spheres to how South Africa's efforts towards enhancing and applying its capabilities in microelectronics should be co-ordinated and further strengthened. The CSIR's R & D Co-ordinating Committee for Microelectronics created four specialist working groups to investigate specific aspects in detail. Their reports have been consolidated to define a national R & D strategy for microelectronics. This will be built around the existing nucleus of skilled manpower, and will make possible growth by training and recruitment. Most important areas of activity for South Africa are identified: the acquisition of facilities which are lacking, the optimum use of costly equipment presently available, and the maintenance of strategic facilities being supported. These efforts will result in the strengthening of the electronics industry. This strategy document has been submitted to the Scientific Advisory Board by the CSIR, and is currently under consideration.

At the same time, the Industrial Development Corporation has made a survey and prepared a

recommendation on how IC design should be organized in industry, so that this sector can be helped to exploit the new possibilities developing in microelectronics today. Some of the actions proposed will inevitably overlap with those of the national R & D strategy but mutual cognisance has assured that there will be no conflict, but rather that further enhancement will take place.

The NEERI recognizes that the future strength in microelectronics development lies in the consolidation of local efforts in both the R & D community, and industry. On certain aspects a single standard will need to be adopted by all participants, and certain research aspects, which are fruitless for South Africa, should be avoided. Hopefully, these studies and recommendations have been made before too much inadvertent diversification in commitments has taken place.

Some of the planned activities of the Microelectronics Department which fit into this greater pattern, and which will receive much emphasis in future, are the following:

Custom digital ICs are becoming increasingly attractive to electronic equipment manufacturers, firstly because design aids are becoming so effective that development cost and time scale are no longer prohibitively high as in the past, and secondly because of the silicon foundry concept. This means that certain manufacturers are prepared to manufacture custom ICs in wafer form for customers who wish to keep all the design and test data confidential, but do not want to become involved in production technology. The semiconductor manufacturer is, however, willing to supply to the customer all the electrical and geometrical design rules pertaining to his process to make such an 'arm's-length' service practicable. For South Africa, the consequences are twofold, and the NEERI plans to exploit both.

Investment in design aids which require relatively modest financing, will allow all the benefits of advanced processes to be exploited without the need to install the capital-intensive process itself. The NEERI intends expanding its computer-aided design (CAD) facilities judiciously in close co-operation with all interested parties, and to take part in contract

design as well as R & D projects of increasingly greater sophistication. The aim is to place most emphasis initially on uncommitted digital circuits (Uncommitted Logic Arrays, or ULAs). The NEERI is developing a service for the supply of prototype samples of new ULA-based designs on a quick turn-around basis. Prefabricated uncommitted wafers are obtained from an overseas manufacturer, but will be available from SAMES at some future date. Whatever the source, designers will enjoy a turn-around time of weeks instead of months for the manufacture of evaluation samples. Large volume production runs will normally be arranged with SAMES. The practicability of this concept has already been proven: in May 1983 the first working chips of a new ULA-based custom digital IC emerged from the NEERI laboratory.

Secondly, it has become apparent that there is little sense in investing much of South Africa's scarce R & D manpower in the development of a complete 'state-of-the-art' VLSI (very large scale integration) process with a view to installing it on a production line, because such processes can be obtained under licence, albeit at considerable cost. It is more profitable to concentrate efforts in semiconductor technology on selected aspects which must be carried out locally.

One such area which can be singled out, is the interconnect pattern technology. Even if the expedient of overseas silicon foundry services is used, it will be essential in many cases to deposit and etch the metal locally. This is especially important in the case of advanced complex ULAs with double layer interconnecting patterns. The NEERI has started with a research project aimed at developing expertise in the photolithography, etching and materials physics aspects of very fine line-width patterns, and the

problems associated with metal-dielectric sandwich layers.

It is also intended to continue with development of new discrete devices where such needs become obvious, like the Darlington transistor example. Power devices can hardly be imagined as microelectronic devices. However, they are made by the same semiconductor technology, but with some unique problem areas of their own.

Maintenance and upgrading of NEERI's mask-making installation, which serves as a National Facility, will also receive priority treatment. Of all the activities related to custom ICs, ULAs and even most research projects, mask-making is the common denominator.

The prospects for completely novel opportunities in microelectronics in future are exciting; all actions and decisions taken until now have been aimed at enabling South Africa to innovate, identify new applications and exploit these actively in industry, rather than to be a mere observer or follower of trends in the rest of the world. There are certain sectors of industry, especially in mining, water reclamation and possibly in ore refining, where South Africa has the opportunity and incentive to innovate and play a leading world role. The application of microelectronic techniques and devices to solve problems in such fields provides an ideal opportunity for enhancing South Africa's competitive position in more than one sector simultaneously. If the local microelectronics industry attempted to operate independently and compete globally in the business of standard semiconductor components, it would not survive long. In 'symbiosis' with general industry, however, it could exert a leverage effect on both.

CSO: 5500/207



## SOUTH AFRICA

### COMPUTER SOFTWARE PACKAGE DESIGNED TO BOOST MARKET RESEARCH

Johannesburg THE STAR in English 31 Aug 83 p 15M

[Text] Market research specialists, Research Surveys has acquired exclusive South African rights to a British-designed software package for market research data analysis that runs on microcomputers.

Until now, most successful research packages were mainframe computer based.

The application package, called Microquest, can be adapted to most microcomputers.

Research Surveys intends marketing Microquest to other users of market research data such as advertising agencies, corporate and consultancy marketing organizations and other market research enterprises.

The Microengine Company has been chosen to launch the Zilog System 8000 microcomputer in South Africa.

It is available in three models--the 11, 21 and 31. All are multiple-CPU implementations of Zilog's Z8000 16-bit microprocessor.

The Zilo System 8000 is a multi-user, multi-tasking system specifically designed for use in the normal office environment.

Tedex Electronics is to make available Pilot and Logo, two new educational languages for its Commodore 64.

Pilot is a computer-aided learning language designed for the teaching-training environment, and Logo a computer-aided instruction language using graphics.

Pilot enables educationists to compose lessons and tests which students then answer via the computer keyboard.

The facilities include commands to design screen frames, commands to include computations within the questions and facilities to plot graphics.

Logo has all the traditional features such as graphics definition and movement, text display, multi-level graphics character display, etc.

Liberty Life has installed two laser printers from CBS (Wang), which have been added to the Wang installation at Liberty.

There are only four such printers used in South Africa.

The first of four automated modules of Auto-Mate, Comcon's advanced-design methodology are now available.

They are Auto-Analyser and Auto-Configurator.

Auto-Analyser is a logical database design tool which enables companies automatically to create their corporate data models or conceptual schemas.

With it companies can build their data dictionaries, define logical records, generate the conceptual schema or produce data-modelling reports.

Auto-Configurator is a state-of-the-art capacity planning and management system for modelling computer systems and networks.

It is used for strategic capacity planning, modelling and configuring systems interactively with performance prediction during system and database design phases.

TK Datakomms has introduced the Micromite, a concept for networking microcomputers.

By increasing storage capacity and improving communication potential the Micromite fileserver offers an expansion route for the hundreds of CP/M single terminal systems in use.

Micromite offers a simple, practical and economical way of upgrading a single terminal system into a complete network with central database and file handling.

The desktop unit enables up to 254 microcomputers to share resources through a local area network.

9201

CSO: 5500/206

## CONTENT OF TELEVISION PROGRAMMING EXAMINED

Johannesburg RAND DAILY MAIL in English 7 Sep 83 p 8

[Article by Greg Garden: "TV and the 'Real' Truth"]

[Text]

**THE** dominant factor preventing this country from having television for so long was the Afrikaner Nationalist view that exposure to the issues of the outside world — viewed as morally and politically permissive — would erode the laager state.

Their real concern, of course, was that the "truth" out there was incompatible with the "truth" right here.

South Africa got a television service only when those in power were certain that the medium could be used to divert people from the real world.

The figures in the first column in the chart show what this really means.

To compile these statistics, I monitored the length of every television programme broadcast during the month of August.

Programmes were grouped according to their types, and their totals translated into percentages of the total broadcast time.

The figures show very little difference from those for the whole of 1982, documented in the last SABC annual general report.

This is encouraging, because it verifies the accuracy of the SABC statistics, and also because it shows that the balance of the statistics is maintained over a selected period.

But the real impact of the figures is that they reveal major deficiencies in the SABC menu.

The aim of the television

service, as laid out in the licence and confirmed by Mr Pieter de Bryn — Deputy Director-General (Programmes) — is "to provide information, education and entertainment in reasonable balance".

The statistics, however, reveal that only 20% of the total is information and less than 10% education (in an impossibly broad and vague sense).

Virtually the full remaining 60% is devoted to entertainment and sport (10% is made up of commercials and programme announcements).

The total imbalance is revealed in the fact that, during August, English television broadcast more than nine times more dramatic than documentary material.

Even magazine programmes — the staple form of television — were outnumbered four-and-a-half to one.

The only noteworthy difference between the English and Afrikaans services was the fact that Afrikaans television had two-and-a-half times more documentary material than English television.

But when the percentages are so low, this can hardly be regarded as very significant.

By way of comparison, the BBC's breakdown for 1981/82 shows that — with drama, films and series making up a full fifth of their schedule — the BBC still manages to transmit four times as much documentary and current affairs material as the SABC.

Somehow, it all just seems to be a better mix.

There's sport on the BBC for those who prefer lighter material. And yet — in spite

**PROGRAMME CONTENT PERCENTAGES: AUGUST 1983**

ENG		AFRIK
29,5	Dramatic series, Films, Plays	26,9
12,2	News	12,8
11,7	Sport	9,9
11,3	Children and Youth	11,8
8,2	Variety	5,5
6,4	Magazine	7,0
3,6	Religion	3,7
3,2	Documentary	7,3
0,8	Serious Music	2,5
6,5	Advertisements	6,5
6,6	Weather, Comment & Presentation	6,1
<b>100,0</b>	<b>TOTAL</b>	<b>100,0</b>
<b>44,7</b>	<b>Local content percentage</b>	<b>42,9</b>
<b>55,3</b>	<b>Foreign content percentage</b>	<b>57,1</b>

of all this — BBC television is able to devote another fifth (20,7%) of its airtime to full-scale educational programmes.

These are made up of programmes for schools, the Open University and continuing education ... which is geared, in a non-formal manner, at adults.

These are areas which the SABC hasn't even begun to cater for.

Quite clearly, the split language channel of the SABC is a major drawback. You can't begin to structure a balanced schedule in two-and-a-half or three hours, and the result is that the lowest common denominator will always triumph.

I regard it, then, as most distressing to hear from one of the highest possible SABC sources that they regard the present system as being the ideal, and are not in favour of a split into separate channels for each language.

This factor is then just another tactic to enable the schedules to be weighted with pap and keep South Africans blissfully ignorant of the real

possibilities of television.

Other points revealed by the August survey show that:

● Out of 39 English "dramatic" programmes or episodes, only five were "locally produced".

Of these, four were the German-Italian-South African co-production "The Heart of the Matter" and the other a re-run of "Charley's Aunt". The Afrikaans equivalent was eight out of 39.

● Only a third of both the English and Afrikaans youth and children's programmes were made here.

This is particularly disturbing, as television should be helping children to come to terms with their own environment and the cultures which they are a part of.

● The pitiful number of documentary programmes is still largely made up of travelogues and wildlife sagas.

It seems as if the SABC deliberately uses these to give documentaries a bad name, and enable them to say that documentaries are not popular with the public.

Investigative documentaries don't exist, and current

and world affairs receive virtually no attention outside of "Midweek" and "Verslag".

● The overall percentages of locally-produced material are significantly lower than the general 1982 figures, in spite of being slightly inflated because magazine programmes (which I have regarded as local) often contain foreign inserts.

Anything below a 50-50 ratio should be considered unsatisfactory ... particularly when the BBC achieved more than 90% local content.

The figures determined by my August survey don't knock the ground from under our feet.

They merely reinforce the true character of the SABC. No longer an infant, but still infantile. Heavy-handed and naive, and yet insidious and dangerous.

This is the apparent paradox of South African television.

If the SABC got its way, you could bring all 1,6-million television licence holders together in a field ... and you'd still have nothing but a vacant lot.

CP CENSURES SABC ON SPORT, RACE POLICY

Kimberley DIAMOND FIELDS ADVERTISER in English 5 Sep 83 p 4

[Text] THE South African Broadcasting Corporation was heavily censured for its treatment of sport and racial mixing, by delegates to the Cape Congress of the Conservative Party, which ended in Kimberley at the weekend.

The television service was heavily criticised for not allowing the various political parties equal time on TV, for one-sided reports, for showing sport and secular films on Sunday. Advertisements showing people of various races together were also criticised.

A delegate said Sunday sport and entertainment was 'volksvreemd' to the Afrikaner, and that having it on TV was part of a levelling of cultures which liberals and socialists advocated.

Population

'If the increase of the non-white population is not controlled, it will cause huge social problems which the taxpayer cannot afford.' Dr W Snyman, MP said.

He said the whites would soon have a negative growth rate and he criticised the Government for not encouraging young married couples to have children.

Dr F Hartzenberg MP, said the Government's policy of paying maintenance to coloured women with illegitimate children stimulated illegitimacy.

He called for the relevant law to be changed. 'It might have been made with good intentions but it has bad results,' he said.

Dr Treurnicht said that in certain circumstances mixed marriages should be tolerated. 'There are certain difficult instances in which people who look like whites are involved with whites.'

He said, however, that on the whole the CP supported the Immorality Act.

## Power

A suggestion was made to organise a Conservative Party youth movement along the lines of the Hitlerjugend.

A delegate said the Hitler youth had helped Hitler come to power and had almost enabled him to win the war.

Possible co-operation between the Herstigte Nasionale Party and the Conservative Party was discussed at the congress.

Mr Jan Hoon, MP, asked if the racial proportions in the new Parliament would be changed as the racial proportions in the population changed.

He pointed out that by the turn of the century, whites would probably be outnumbered.

Dr Treurnicht said South West Africa/Namibia could not be incorporated into South Africa at this point because too much had happened since the days when it had seemed possible.

He said, however, that 'the white people in SWA 'are our people.'

He said that white South West Africans holding South African passports should be allowed to vote in the referendum.

Dr Hartzenberg said the influx control laws should be strengthened and that only those who came to sell their labour should be allowed into the cities.

## Weak

He said squatting should not be allowed and criticised the Government for its weak handling of the Crossroads situation.

Dr Hartzenberg said that while the Cape was a coloured preference area, the number of blacks there had increased. 'Because of this, the coloureds haven't been able to get jobs there, and they have gone to Johannesburg to find work and South Africa gets even more mixed up,' he said.

The appointment of coloureds to hospital boards in the Cape Province was criticised as an example of 'creeping integration.'

CSO: 5500/208

## SOUTH AFRICA

### BRIEFS

COMPUTER CRIME RISE WARNING--South Africa can expect a drastic rise in computer and data transmission crime, says EDP Security--soon to introduce the Seal Sakdata Software Cryptographic Security System, claimed to halt tampering with computer systems. The product was invented seven years ago by Sakdata founder, Mr Christer Linden, former director at the Swedish Defense Forces Computer and Data Transmission Centre. Mathematical principles underlying the cryptologically based Seal algorithms were elaborated by Sakdata cryptologist, Mr Hans Block, who also led projects for preserving secrecy of Swedish defense data. Approved by North European banking and financial institutions and defense forces, the Seal Security System prevents unauthorized tampering of complete data files and electronic money transfers by using complex digital codes. If data or transmission is tampered with, the computer signals that the mathematical seal has been broken. The system, used all over North Europe, is being introduced in the rest of Europe, the US, Canada and Australia. In South Africa, banking and financial institutions have shown interest. Mr Andre de Saint-Clair, chairman of EDP Security, is negotiating with investors and data processing specialists on forming a local joint venture to distribute and service the system in Southern Africa. [Text] [Johannesburg THE STAR in English 31 Aug 83 p 15M]

ESTATE ON-LINE SYSTEM--Kuper Computer Management Systems has developed an on-line computer system specially designed for estate agents. The system includes facilities for matching buyers and sellers, details of all houses on the market, complete general ledger with automatic agent statement, plus a wide variety of enquiry facilities. The company says the system was established in an attempt to provide for a major need of estate agents, the need to have market information at their fingertips. The system configuration is such that each client will be allocated a completely separate set of files only accessible to him by his own sign-on codes and passwords. The computer system includes on-line matching of buyers and sellers and general ledger reports which consist of cash book listings, year-to-date general ledger and trial balances, automatic income statements for the company, agent statements and agent's schedule for management purposes. Besides these major components, the system can offer many by-products such as automatic follow-ups and diary situations, word processing, electronic filing and the like. The system is designed to operate either under one or multiple cost centres. This means that if a client company operates with several branches, each branch may

operate as an entirely separate cost centre with its own reports and figures.  
[Text] [Johannesburg THE STAR in English 31 Aug 83 p 15M]

**BUILDING TRADE COMPUTERS**--Computers are revolutionizing the traditional approach to time-consuming budgeting and project management methods in building. SK Computer Systems, South African hardware supplier, has teamed up with UK software specialist Project Software to provide project management with systems programmes for all phases. The products comprise a Project Cost Model system, an Estimating system designed to maintain drawing registers and a system known as Action List. Mr John Gillespie, technical director of Project Software expects the systems to be used by engineers, estimators, planners and cost accountants. "No specialist computer knowledge is necessary. "Our estimating system does not require complex codes. The estimator can use a light pen connected to his terminal to point at figures displayed on the screen. The computer automatically picks out these figures, and they can be used in a rate build-up." [Text] [Johannesburg THE STAR in English 31 Aug 83 p 5M]

**VW ORDERS RESOURCE MONITORING SYSTEM**--Volkswagen of SA has ordered the Saco Resource Monitoring System for its Uitenhage manufacturing plant. This order, initially worth R600,000, is regarded as indicating future managerial trends within the industry to improve the use and control of labor resources. The on-line system benefits workers directly, giving them up-to-date records of their clocking transactions. The time-recording module keeps available accurate records of normal time, overtime, callouts and standby for all hourly-paid employees. The system also maintains a complete on-line personnel database. This provides access to information on each employees' personal data, employment history, training records, grading, work performance and medical and leave history. VW plans to make extensive use of these facilities for employee advancement, and projections of future staffing requirements. A significant number of clerical staff from the time office, personnel and security departments will be upgraded to terminal operators. VW management will have accurate information on the full plant labor complement each day. This will provide it with the necessary information for production scheduling and line balancing. The system caters for multiple shift patterns and for the variety of time-recording rules which can be applicable at the factory. The configuration ordered will handle the 8,000 employees at the main Uitenhage site as well as its two satellite locations. The central system includes a five-five processor complex with full hot standby facilities. The terminal network has more than 60 of Saco's locally designed and made TT-200 transaction terminals and a number of screens for inquiries and data capture. It is estimated that the system will handle three full data base navigations per second. VW has selected bar code as the recognition medium, so all machine-readable information in the system can later be interfaced with shop floor data collection and inventory recording facilities. Possibilities for later expansion of the system include direct links to VW's IBM mainframes for additional terminal facilities and integration of shop floor data-collection facilities. [Text] [Johannesburg THE STAR in English 31 Aug 83 p 15M]

**SAFMARINE BACK-UP**--Safmarine's computer arm, Safmarine Computer Services, has broken new ground in establishing a computer back-up operation to ensure continuity in the event of its main computer system being put out of commission



as a result of a disaster. It is believed to be the first company in the country to introduce a protective system of this kind. SA Transport Services has a complete carbon-copy duplication of its rail-traffic control system, but Safmarine's solution is to provide the less costly but adequate alternative of a back-up site containing a second mainframe but not on-line duplication of the entire up-and-running system. Instead, it backs up the software to the extent of regularly updating the main documents on discs which are kept in a safe--and secret--place other than both the main and back-up sites. Thus, in the event of a disaster the back-up discs can be brought into play at the back-up site and have the system running again within 24 hours of the mishap. The main function of Safmarine's system, which runs on an IBM mainframe, is the tracking and planning of cargo and containers around the country and of the line's fleet of ships around the world. A disaster could mean tremendous losses of time and money without this back-up facility, which is due to go into operation early next year. Besides the computer, it will include fully furnished and serviced offices and will cost about \$1.6-million to establish. However, following a pattern already established in the US, where a number of these back-up systems exist, Safmarine will recover some of its costs by leasing the facility to other IBM users needing similar back-up. In the US such systems have up to 100 subscribers each; if Safmarine fails to attract a sufficient number of security-conscious companies around the country to make the site viable, it will also sell computer time to firms requiring additional processing power on a temporary basis. [Text] [Johannesburg SUNDAY TIMES-BUSINESS TIMES in English 4 Sep 83 p 6]

AFRIKAANS SERMONS CENSORED--CAPE TOWN--English-language church services are exempt from a new SABC rule which requires the SABC to 'approve' church sermons before they are broadcast. It will apply only to Afrikaans services. The SABC proposed to stop all live radio broadcasts of Sunday church services, with immediate effect. Sermons would have to be submitted in writing to the SABC two weeks in advance, and the service would be recorded a week before it was broadcast including 'approved' sermon. But the 'open' churches, which broadcast on English radio, were not told of the plan. Notice of the new system was given by the Reverend Hennie Duvenhage, the SABC's head of Afrikaans Radio religious services, to the August meeting of the advisory committee on Afrikaans religious services. It was accepted by the Afrikaans churches. The Argus sister newspaper to the DFA, found that none of the churches broadcasting on English-language radio had been informed of the new rule when their advisory committee met, on the same day. The SABC was asked for an explanation. Mr E van der Merwe, spokesman for the SABC's publicity department, confirmed that the matter had not been discussed with the 'English' churches. Dr Charles Villa-Vicencio senior lecturer in the Department of Religious Studies at the University of Cape Town, commented: 'I cannot see how any minister of Gospel would be prepared to submit his sermon in advance to some other authority. [Text] [Kimberley DIAMOND FIELDS ADVERTISER in English 3 Sep 83 p 2]

CSO: 5500/208

SWEDISH FIRM ENTERS INTERNATIONAL SATELLITE-TV COMPETITION

Stockholm SVENSKA DAGBLADET in Swedish 22 Aug 83 p 24

/Article by Tomas Lundin: "Luxor in Competition with the Giants; Eight New TV Channels via Satellite Within Three Years"

/Text/ Before three years have passed, Swedish households are going to be able to see up to eight new TV channels via satellite. In view of that expected development, the nationalized Luxor firm in Motala is investing heavily in satellite receivers, and that firm accounts for approximately 25 percent of the American market at present.

The West German TV-SAT, which is going to transmit German TV and 16 radio programs in stereo on two channels, will be launched in 1985. A few months later it will be the turn of the French TDF-1, with two channels, while the Nordic Tele-X, with a mixed product of Swedish, Norwegian and Finnish programs, will not be put into operation until 1986, at the same time Great Britains UniSat will be launched. The Russian Horizont belongs to another category of satellites that cannot be received with the same equipment as the others.

However, the question is whether the little enterprise in Motala will be able, over the long term, to keep itself outside of the process of furious concentration that is raging on the continent.

Sales of color-TV sets set a new record on the European market in 1982 with 12.6 million units sold. While that increase is expected to continue at the same rate of speed, according to the English electronic consultant firm of Mackintosh, little Luxor in Motala is launching an entire new generation of TV apparatuses which, among other things, are capable of receiving satellite transmissions.

In the United States, the Motala enterprise has succeeded in running off with 25 percent of the budding market for satellite receivers in a short time and expects to be able to develop that entirely new field into one of that concern's most profitable branches. In 1986, sales of receivers are expected to contribute 25 percent of its total turnover of consumer electronic products.

## Alone in the World

According to Ove Candow, Luxor's director of consumer electronics, they are at least one year ahead of their competition at present and, in the present situation, Luxor is the only enterprise in the world that is producing this equipment in series.

Indeed, the market in the U.S. has not been bigger than about 200,000 receivers for some time, with Luxor accounting for one fourth of that quantity. However, from 3 to 4 million American households outside of the big-city areas have no chance at TV reception, on the whole, and consequently they constitute a gigantic customer potential for satellite TV. However, developments will become really interesting beginning in 1985, when West Germany and France will launch their first satellites, which, among other things, are going to transmit to Sweden.

According to Luxor's market analysis, approximately half of the Scandinavian households will be interested in buying receivers then. Taking the present price calculations--between 3,500 and 4,000 kronor for the supplementary equipment prospective satellite viewers would have to buy--as a starting point, that amounts to a market on the order of 10 billion kronor just in Scandinavia.

Luxor's objective is to obtain a 15 to 20 percent share of that market--that is, the share they now have in the color-TV market. To that must be added the fact that, at the same time, they will create opportunities, with their sales of supplementary equipment, for selling their own TV sets that are adapted for use with satellites.

## Springboard

"At present, we have not begun to sell TV sets in the United States, but satellite receivers must be regarded as a springboard into the American market," Ove Candow says.

Another unexplored region where Luxor is concerned is West Germany, which, according to Mackintosh, is going to be Europe's leading TV market in 1986 at the latest. The Federal Republic is regarded by Luxor as too tough a market, and one that preferably should be avoided.

In the satellite field, however, intensive negotiations are going on at present with a number of West German enterprises that are very much interested in getting to buy Luxor's receiving sets.

Ove Candow does not want to reveal what companies are involved, but he says that, in any case, it is not any of the electronic giants on the continent that just now are engaged in buying up everything they can get hold of in the electronics line.

## Concentration

The people at Luxor are firmly resolved not to allow themselves to be pulled into the process of concentration that characterizes the European market at present.

The entire home electronics branch of industry is now developing in the direction of a gigantic restructuring process which is expected to end up with only two gigantic conglomerates surviving.

One of those is the nationalized French Thomson Brandt firm, which recently took over Telefunken and bought up Nordmende, Videocolor and others earlier. The other is Europaettan Philips, which already owns a considerable number of shares in the West German market leader Grundig and which has been interested in a complete takeover of that company for many years.

## Large Operating Profits

The driving force in this process is the need to make use of large operating profits to the extent possible and to create effective units which the financial strength that is required to provide for the gigantic development costs to be expected in the future.

How Luxor, with series of 135,000 TV sets per year, will be able to remain independent in this market is a mystery to many people. In a SING /Satellite Inertial Navigation Determination/ analysis from 1981, it was stated, among other things, that an annual volume of 700,000 sets is necessary to be able to hold one's own in international competition.

Ove Candow flatly rejects that reasoning and points out that it is just his company's flexibility and ability to react quickly that gives it an advantage over its big, unwieldy competitors.

Luxor now is concentrating on automating production and making it more efficient in order to reduce its costs, while at the same time it is reducing the assortment of products it puts out.

"But it is entirely clear that we must benefit to an unprecedented extent from cooperation with a partner with plenty of capital—a partner who is well represented on the international market," Ove Candow says.

"However, what we don't want is a purchaser who only wants to get hold of the names of our products or whose purpose is to cut Luxor up into pieces," he asserts.

9266

CSO: 5500/2775

HARDWARE, SOFTWARE WILL CONNECT SNA, TRANSDATA NETWORKS

Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German  
5 Aug 83 p 7

[Article: "Coupling Software Supports Computer Network Interconnection"]

[Text] Siemens AG, Munich/Berlin. SNA and Transdata networks can now be linked and in such a way that all participating host computers have equal status. In making the connection, present functions are not compromised and special tailoring for the individual case is not required, Siemens reports. The neutral software product "Transit-CD" (cross domain) now offered by Siemens serves to couple the equal-status or symmetrical linkage of homogeneous Transdata and SNA networks into a heterogeneous combined network. With this new coupling software, the company is supporting the electronic data processing market's much discussed and needed opening up of computer networks without changing the network architectures or the host computers' operating systems.

The hardware coupling link is a Transdata 966x communications computer which functions as a mapping computer. Only the software package Transit-CD in the mapping computer knows that a Transdata is working on one side and a SNA network on the other. Each of the subnets so connected sees the other parts, including the mapping computer, as a homogeneous extension of itself.

The mapping system, the Transit-CD software plus the Transdata 966x computer, fulfills, according to Siemens, the three important requirements of computer coupling: 1) the connection is symmetrical--hosts, cluster controllers, terminals and applications subsystems can work together with equal status without limiting the functions and properties of the SNA and Transdata network architectures; 2) the individual products participating in the network remain unchanged, which means that the host operating systems (for instance the BS 2000), the pretransmission data computer (for example the PDN) and the acquisition methods for long-distance transmission (UTM, DCAM, VTAM) continue to function just as they did before coupling; 3) Transit-CD is portable--it is not tailored for particular projects and can thus be employed in arbitrary configurations after suitable initialization.

Joint operation of decentralized applications programs, for instance data stations in the Siemens system, with appropriate central applications programs

in the foreign host computer according to the conventions of the SNA and FNA architectures can be realized with another Siemens Software product: Transit SNA. Then however the Siemens systems are subordinated to the foreign host computer and thus work only inside of a domain, i.e. in a network segment with CPU, long-distance processing control unit and data stations.

9160  
CS0: 5500/2771

## TELECOMMUNICATIONS AGENCY TO INCREASE DATA SERVICES OFFERING

Helsinki HELSINGIN SANOMAT in Finnish 2 Sep 83 p 29

[Text] The Post and Telecommunications Agency is sharply increasing its data services. On Thursday the agency inaugurated its so-called package linking data transmission service, by means of which firms can remain in contact with one another more easily than before and with domestic and foreign information services with the aid of computer terminals.

Called the Datapak system, the service especially expands firms' foreign communications potential. Through Datapak a firm can procure information from the computer archives of about a dozen West European and North American countries. New countries are joining the system's network every month.

Datapak operates through an already completed technical network, the Public Data Transmission Network (YDV). Datapak is the third system in the YDV. In 1981 the telecommunications agency inaugurated a district linking Datex service in which a firm maintains contact with another firm or information service through a constantly operating direct line.

As a second system, last March it inaugurated the Teletex service as an experimental communications system which uses the data transmission network for the transmission of information.

Datapak does not require a direct line between the parties concerned, contact instead being arranged through center computers. The agency feels that Datapak's greatest advantages are that it affords access to international data banks and that even computer terminals operating on different frequencies can communicate with one another through the system. Direct communication is handled primarily between computers operating on the same frequency.

#### Individuals Will Make Their Own

The telecommunications agency believes that the number of Datapak subscribers will rise to from 400 to 500 firms during the half-year experimental period. Foreign computer archives are communicated with from Finland thousands of times every year. For example, in 1982 Finns made 4,000 requests for information from abroad, over half of them from the United States. The computer time was in excess of 40,000 minutes.

Finland's Datapak equipment was ordered from the American data communications and telephone giant, the Bell System. The industry's Finnish firms were unable to supply the equipment. Datapak does not, however, require customers to procure Bell computer terminals, since the system uses international standards.

Connections can be made with the Datapak system immediately anywhere in Finland. Users of the system are charged an annual fee and also on the basis of computer time.

The Helsinki Telephone Company, which has reached a tentative decision to tie a package linking data transmission network into its entire telephone network, will be competing with the telecommunications agency for Datapak subscribers.

Telephone companies will later try to enter into agreements with the telecommunications agency so that the different Datapak systems will be able to hook up with one another through the YDV and the telephone network.

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END